

In the Claims:

This listing of claims will replace all prior versions and listings of claims in this application.

1 (Currently amended). A method for the detection of an analyte in a fluid, which comprises ~~contacting~~ passing the fluid with ~~continuously over~~ a holographic element comprising a medium and a hologram disposed throughout the volume of the medium, wherein an optical characteristic of the element changes as a result of a variation of a physical property occurring throughout the volume of the medium, wherein the variation arises as a result of interaction between the medium and the analyte, and wherein the reaction and the variation are reversible; and detecting any change of the optical characteristic.

2 (Previously presented). The method according to claim 1, wherein the physical property is the size of the medium.

3 (Previously presented). The method according to claim 1, wherein the optical characteristic is the reflectance, refractance or absorbance of the holographic element.

4 (Previously presented). The method according to claim 1, wherein any change of the optical characteristic is detected as a color change.

5 (Previously presented). The method according to claim 1, wherein any change of the optical characteristic is detected as an intensity change.

6 (Previously presented). The method according to claim 1, wherein the analyte is glucose or lactate.

7 (Previously presented). The method according to claim 1, wherein the analyte is CO₂ or oxygen.

8 (Cancelled).

9 (Previously presented). The method according to claim 1, wherein the fluid is an optical fluid.

10 (Currently amended). A device for the detection of an analyte in a fluid, which comprises a fluid conduit having an inlet, an outlet, and a holographic element, which comprises a medium and a hologram disposed throughout the volume of the medium, over which the fluid can flow, wherein the device also includes a window whereby non-ionising radiation can irradiate the holographic element, and wherein the analyte is detected by contacting the fluid with the holographic element, wherein an optical characteristic of the element changes as a result of a variation of a physical property occurring throughout the volume of the medium, wherein the variation arises as a result of interaction between the medium and the analyte, and wherein the reaction and the variation are reversible.

11 (Cancelled).

12 (Previously presented). The device, according to claim 11, wherein the physical property is the size of the medium.

13 (Previously presented). The device, according to claim 11, wherein the optical characteristic is the reflectance, refractance or absorbance of the holographic element.

14 (Previously presented). The device, according to claim 11, wherein any change of the optical characteristic is detected as an intensity change.

15 (Previously presented). The device, according to claim 11, wherein any change of the optical characteristic is detected as an intensity change.

16 (Previously presented). The method, according to claim 6, wherein the fluid is an optical fluid.